

# Westell® | ProtectLink™ VHF Mid Power BDAs

UL2524 (2nd Edition) & NFPA Public Safety & Private Land Mobile Radio Services BDA

## General Information

Reliable, seamless wireless communications are vital for first responders and commercial / industrial sectors. Now Westell is enhancing these indispensable capabilities with the ProtectLink™ VHF Mid Power Series of BDAs. This unique platform provides VHF band coverage along with integrated duplexers handling a range of applications that meet or exceed current codes and standards.

The VHF Mid Power Class A/B BDA is offered in 4-port simplex, and duplex with high or low band operation models with 0.5 Watt and 85dB of gain. Class A operation includes 16 filters per band with individual filter bandwidths from 12.5KHz to 75KHz, and wideband operation of up to 24MHz VHF.

All versions include a full-featured, easy to use web GUI, factory configurable filters, intelligent oscillation management, built-in isolation test, NFPA/UL2524 alarm capabilities, built-in battery backup circuitry, and a built-in communication link for an optional remote annunciator panel.

Westell's ProtectLink™ BDAs are an integral part of any NFPA complaint Emergency Responder Communications Enhancement System (ERCES) or private land mobile radio (LMR) system.

## Applications

- In-building coverage for commercial & residential buildings including warehouses, tunnels, and airports.
- Rapid field deployment of critical communications infrastructure.
- Wireless coverage enhancement for 'dead zones' including rural areas, resorts, stadiums, off-shore oil rigs, and remote field areas.

## Frequency Range

- VHF: 150-174 MHz

## Product Highlights

- Intelligent oscillation management and self-healing
- 85dB gain +/-1.5 for both UL and DL
- Compliant to UL/CSA 2524, UL/CSA 62368-1, UL50E Type 4
- Built-in battery charging and alarm circuitry
- Built-in annunciator communications link
- Emergency Power Off (EPO)
- Uplink & downlink squelch per filter
- Independent gain control per filter
- NEMA4 conduit glands included
- Supports both digital and analog modulation
- Supports P25 phase 1 & 2
- Supports SNMP
- 3-year warranty



VHF Bi-Directional Amplifiers (BDAs)  
Westell® ProtectLink™ Public Safety Series

## Ordering Information

Part Number	Description
CS40-V27-V1D-A0	VHF 150-174 MHz, 0.5 Watt, 4 Port Simplex, 24 MHz, Class A/B
CS40-V27-V2D-A0	VHF 150-162 MHz, 0.5 Watt, 3.5 MHz PB/1.5 MHz GB, Duplex, Class A/B, Low Band
CS40-ANNUNC	BDA Remote Annunciator for Monitoring a Single Device
CS19-BBC-003	Wall-Mountable Battery Cabinet
CS19-PYL12V100FT	100AH Sealed Lead-Acid Battery (2 Required, 12 Hour)
CS19-PYL12V160FT	160AH Sealed Lead-Acid Battery (2 Required, 24 Hour)

## Certification References

UL 2524, 2nd Edition	In-Building 2-Way Emergency Radio Communication Enhancement Systems (ERCES)
UL 62368-1	Audio/Video, Information and Communication Technology Equipment - Part 1: Safety Requirements
UL 508A	Industrial Control Panels (UL50E Type 4)
VHF FCC ID	FCC ID: NVR230021014V



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## BDA Electrical Specifications

Main power input	100-240 VAC, 50/60 Hz, 2.0 A
AC power consumption	175 Watts (Max)
Battery charger output	28 VDC
DC input range	24 - 30 VDC
DC power consumption	125 Watts (Max)
DL output power	27dBm (0.5W)
UL output power	27dBm (0.5W)
DL gain	85dB +/- 1.5dB
UL gain	85dB +/- 1.5dB
Noise figure @ max gain	<7dB
AGC dynamic range	60dB
Gain adjustment range	30dB
Filter gain adjustment	30dB
Squelch adjustment range	-60 to -90dBm
VSWR	<1.5:1
Number of filters Class A BDA	16
Number of filters Class B BDA	4
Class A BDA filter bandwidths	12.5KHz, 25KHz, 50KHz, 75KHz
Class B BDA filter bandwidths	0.7MHz, 2MHz, 3.5MHz, 5MHz, 24MHz
UL max input power	+10dBm
DL max input power	0dBm

Note: All gain and power values are prior to filters, varies by model.  
Refer to iBwave vex file: <https://www.westell.com/support/design-with-westell>

## BDA Mechanical Specifications

Dimensions (H x W x D)	29.1" x 20" x 13.8"
Approximate weight	79 lbs to 135 lbs, depending on filters
Mounting	Wall mount
Weatherproofing	IP65/NEMA Type 4
Cable feedthroughs	Cordgrips and flex conduit fittings included
Antenna ports	N female
User interface: GUI & NMS	RJ45 jack, web browser based
Alarm connections	Compression screw terminals
AC & DC power	Compression screw terminals
Annunciator	RJ45 jack
Operating temperature F (C)	32° (0°) to 120° (49°)
Color	Red

Propagation Delay	KHz				MHz				
	12.5	25	50	75	0.7	2	3.5	5	24
	60us	36us	25us	15us	6us	6us	6us	6us	6us

60dB Filter Rejection from Band Edge									
Bandwidth	KHz				MHz				
	12.5	25	50	75	0.7	2	3.5	5	24
	30	50	105	210	>1	>1	>1	>1	>1

## BDA Diagram



Cabinet Front View



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# Westell® | ProtectLink™ Accessories

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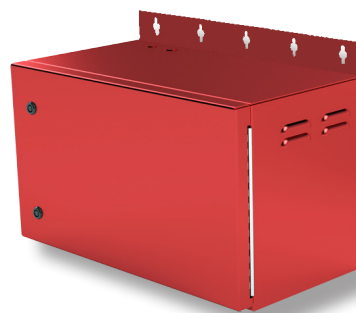


## Battery Backup

Westell's CS19-BBC-003 battery cabinet is designed to house up to two 160AH batteries in a red NEMA3R cabinet. The battery cabinet comes with everything needed for easy and fast installation including conduit fittings, wire and terminals. Short circuit protection is provided by a circuit breaker inside the cabinet which also provides a convenient way to test for charger fail alarm.

### BBC-003 Cabinet and Battery Specifications

Cabinet Specifications	
Dimensions (W x H x D)	26" x 15.6" x 14"
Weight	35 lbs
Mounting	Wall mount
Cable feedthroughs	Flex conduit fittings included
Battery Specifications	
CS19-PYL12V160FT (dims)	21.9" x 11" x 4.9" (2 required, 24-hour)
CS19-PYL12V160FT (wt)	116 lbs each
CS19-PYL12V100FT (dims)	20" x 9.3" x 4.2" (2 required, 12-hour)
CS19-PYL12V100FT (wt)	76.9 lbs each
CS19-PYL12V45FS (dims)	11" x 7.8" x 4" (2 required for holdover with generator backup)
CS19-PYL12V45FS (wt)	33 lbs each



CS19-BBC-003 Battery Cabinet

## Remote Annunciator

Alarm annunciation of each active element in the system can be monitored at the fire control room or wherever needed through a remote annunciator and via the alarm relay outputs on the BDA. Our remote annunciators are compact and can be housed in a typical 2 gang electrical box and connected with a single standard CAT5 cable up to 3,000 feet in length, providing a compact and clean solution for monitoring the health of each active DAS element.

With both visual and audible annunciation of alarms, first responders will have a clear indication of the DAS system performance as they enter the building.

### Product Highlights

- Provides remote annunciation of alarms
- Operates up to 3,000 feet (914.14 meters) from BDA
- Compact, unobtrusive design
- Uses single CAT5 cable
- Includes audible annunciation



CS40-ANNUNC

### Remote Annunciator Specifications

Dimensions (H x W x D)	6.1" x 5.1" x 1.1"
Weight	1.5 lbs
Mounting	Standard 2 gang electrical box
Connector	RJ45 Jack
Maximum cable distance	3,000 feet (914.4 meters)



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